

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human BMP-3 in direct ELISAs and Western blots. In direct ELISAs, this antibody shows approximately 40% cross-reactivity with recombinant human (rh) BMP-3b/GDF-10. In direct ELISAs and Western blots, this antibody does not cross-react with rhBMP-2, -4, -5, -6, -7, or -8.
Source	Monoclonal Mouse IgG _{2B} Clone # 203706
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant human BMP-3 Gln363-Arg472 Accession # P12645.2
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	1 µg/mL	Recombinant Human BMP-3 (Catalog # 113-BP)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

BMP-3, also known as osteogenin, the most abundant BMP in adult bone, is one of at least 15 structurally and functionally related BMPs, which are members of the TGF-β superfamily (1-3). BMPs were originally identified as protein regulators of cartilage and bone formation. They have since been shown to be involved in embryogenesis and morphogenesis of various tissues and organs. BMPs also regulate the growth, differentiation, chemotaxis, and apoptosis of various cell types. Similar to most other TGF-β family proteins, BMPs are highly conserved across animal species. At the amino acid sequence level, mature human and rat BMP-3 are 98% identical. BMP-3 is synthesized as a large precursor protein that is cleaved at the dibasic cleavage site (RXXR) to release the carboxy-terminal domain. Biologically active BMP-3 is a disulfide-linked homodimer of the carboxy-terminal 110 amino acid residues that contains the characteristic seven conserved cysteine residues involved in the formation of the cysteine knot and the single interchain disulfide bond (4). The role of BMP-3 in bone is contradictory since, unlike osteogenin purified from bone, recombinant BMP-3 has not shown osteogenic function (5). Several studies indicate that BMP-3 is an inhibitor of osteogenic BMPs. BMP-3 dorsalizes *Xenopus* embryos, the opposite effect of BMP-2 or 4, which cause ventralization. BMP-3 inhibits alkaline phosphatase production and induction of osteoblastic target genes in undifferentiated mesenchymal and osteogenic cell lines that have been treated with BMP-2. BMP-3 also induces the expression of TGF-β/activin responsive genes, but not BMP-responsive genes. Since the inhibitory effect is not due to direct competition with osteogenic BMPs, it has been suggested that BMP-3 activates signaling through an activin pathway, resulting in antagonism of osteogenesis induced by other BMPs.

References:

1. Chen, D. *et al.* (2004) *Growth Factors* **22**:233.
2. Hino, J. *et al.* (2004) *Front. Biosci.* **9**:1520.
3. Bahamonde, M.E. and K.M. Lyons (2001) *J. Bone and Joint Surgery* **83-A** (suppl 1):S156.
4. Wozney, J.M. *et al.* (1998) *Science* **242**:1528.
5. Daluiski, A. *et al.* (2001) *Nature Genetics* **27**:84.